

AMENDMENTS TO THE SPECIFICATION

Please add the following new heading, new paragraph and second new heading before the first full paragraph on page 1 of the specification as it appears in the International Publication:

Cross Reference to Related Applications

This application claims the benefit of International Patent Application Number PCT/GB2003/004091, filed September 24, 2003, which claims priority to Great Britain Patent Application No. 0224709.6, filed October 24, 2002.

Background of the Invention

Please add the following new heading before the paragraph beginning at page 2, line 8:

Brief Summary of the Invention

Please add the following new heading before the paragraph beginning at page 5, line 22:

Brief Description of the Drawings

Please add the following two new paragraphs and new heading before the paragraph beginning at page 6, line 3:

Figure 5 illustrates a system in block diagram form according to one embodiment of the invention.

Figure 6 illustrates a flow chart showing a method in accordance with one embodiment of the invention.

Detailed Description of the Invention

Please replace the paragraph from page 7, line 1 to page 7, line 15 with the following amended paragraph:

Figure 3 shows a time line of the pulsed shut down method of the invention. As can be seen, in tandem with the pulse sequence shown in the top line, a booster associated with the pump may be configured to run for a brief period after initial shutdown to aid in removal of any powdery contaminant within the pump mechanism to reduce the initial quantity which may settle on the stator while the pumping mechanism is inactive. As can be seen from the top line of the figure, after shutdown, the pump remains active for around 30 seconds and then is dormant for a period ($\Delta T = 10^\circ\text{C}$) while the internal temperature of the mechanism, monitored by the controller falls to 10 degrees (centigrade) below the normal operating temperature. When the period is complete, the pump is activated for 30 seconds then again held dormant until a further fall of 10 degrees in the monitored temperature. While in the exemplary embodiment the fixed time period for pump activation is 30 seconds, that time period may be in the range of from 15 to 45 seconds inclusive. The time period may be the

same for each cycle, or may be different for each cycle. At the end of each fixed time period of operation of the pump mechanism, a separate inlet purge function may be effected by the controller. The cycle is repeated until either the monitored temperature is 40°C, or the time elapsed since the start of the sequence is two hours.

Please add the following new paragraphs before the paragraph beginning at page 7, line 22:

A system 500 according to one embodiment of the invention is shown in Figure 5. The system 500 includes a pumping mechanism 510. The pumping mechanism may, for example, be a non-contacting, self-valving dry pump such as those used in semiconductor manufacture. In one embodiment, the pumping mechanism 510 is a claw type dry pump.

A temperature sensor 511 senses the operating temperature of the pumping mechanism 510. The sensor measures drops in the internal temperature of the pumping apparatus.

A controller 520 controls the operation of the pumping mechanism 510. The controller 520 may comprise a microprocessor 521 embodied in a computer 522. The controller 520 monitors the internal temperature of the pumping mechanism 510 by means of the temperature sensor 511.

The controller 520 further is configured to carry out an automated shut-down sequence of the pumping mechanism 510 by initiating and ceasing operation of the pumping mechanism according to a sequence and method. The controller may be

configured by installing a computer program carried by a computer readable carrier medium such as a floppy disk, a CD, a mini-disc or a digital tape.

For example, the controller 520 may be configured to carry out an automated shutdown sequence according to the series of steps 600 shown in Figure 6. In that sequence, the controller first detects (step 610) the cessation of operation of the pumping mechanism. The controller then monitors (step 620) the temperature of the pumping mechanism after cessation of operation. The temperature is monitored by means of the temperature sensor 511 (Figure 5).

Returning to Figure 6, at at least one pre-selected temperature interval, the controller initiates (step 630) operation of the pumping mechanism for a fixed time period so as to purge a proportion of contaminant particulate matter present until a predefined temperature is reached or a predefined time limit has passed.